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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,196	11/08/2001	Jorrit Ernst De Vries	NL000645	2145

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EXAMINER	
BATTAGLIA, MICHAEL V	
ART UNIT	**PAPER NUMBER**
2652	6

DATE MAILED: 03/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/008,196	Applicant(s) DE VRIES ET AL.	
	Examiner Michael V Battaglia	Art Unit 2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 November 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The examiner suggests including something along the lines of compensating for spherical aberration induced when reading from optical record carriers with transparent layers of different thicknesses.

3. The disclosure is objected to because of the following informalities:

a. On line 3 of page 5, the examiner suggests replacing "realised" with -realized-.

b. On line 15 of page 6, the examiner suggests replacing "minimised" with -minimized--.

c. On line 32 of page 7, the examiner suggests replacing "magnetisation" with -magnetization--.

d. On line 7 of page 13, the examiner suggests replacing "minimisation" with -minimization--.

e. On line 4 og page 15, the examiner suggests replacing "realised" with -realized-.

Appropriate correction is required.

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

5. Claim 1 is objected to because of the following informality. On line 21 of claim 1, the examiner suggests replacing "characterised" with -characterized--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 and 5 recite the limitation "the defocus" in line 2. There is insufficient antecedent basis for this limitation in the claim. The examiner will interpret the claims as if "the defocus" was replaced with -a defocus-.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoo et al (hereafter Yoo) (US 6,091,691) in view of Katayama (US 6,201,780).

In regard to claim 1, Yoo discloses an optical head for scanning a first optical record carrier including a first information layer and a first transparent layer having a first thickness and for scanning a second optical record carrier including a second information layer and a second

transparent layer having a second thickness different from the first thickness (Fig. 8A, elements 30A and 30B), the head including a radiation source for generating a first radiation beam having a first wavelength and a second radiation beam having a second wavelength different from the first wavelength (Fig. 8A, elements 41 and 45 and Col. 11, lines 1-5), the second radiation beam including a central sub-beam (Fig. 2B, elements A1 and A2) and an outer sub-beam (Fig. 2B, element A3), an optical system for converging the first radiation beam through the first transparent layer to a focus on the first information layer and for converging the second radiation beam through the second transparent layer to a focus on the second information layer (Fig. 8A, element 20, 20'), and a detection system for receiving radiation of the first and second radiation beam from the information layer and including a photo-sensitive area arranged in a detection plane (Fig. 8A, element 43), the optical system including an optical element having a non-periodic phase structure (Figs. 2C and 2D, element A2), the phase structure inducing a wavefront deviation in the central sub-beam that compensates the difference in spherical aberration due to the first and second transparent layer (Fig. 3A), characterized in that the optical element is transparent for the first radiation beam, the central sub-beam and the outer sub-beam (Figs. 2A and 2B), and that the wavefront deviation induced in the second radiation beam is such that, when the focus of the central sub-beam is located on the second information layer, the radiation of the central sub-beam and the outer sub-beam form a central intensity distribution (Fig. 11, elements B1 and B2) and an outer intensity distribution (Fig. 11, element B3), respectively, in the detection plane, the central intensity distribution and the outer intensity distribution being separated by a substantially dark area (Fig. 11), and the photo-sensitive area captures radiation of substantially only the central distribution (Col. 10, lines 30-42). The examiner interprets the phase structure of Yoo as being non-periodic because it does not have marked or repeated cycles. In addition, the examiner notes

that the optical system of Yoo approximates a flat wavefront deviation in the first radiation beam except in the area of A2 as shown by Figure 2A and that the focal point of the first radiation beam is optimized where the flat wavefront deviation is approximated (Col. 4, lines 56-59). Yoo does not disclose that the phase structure includes a plurality of concentric areas inducing a wavefront deviation in the first radiation beam that globally approximates a flat wavefront deviation.

Katayama discloses a phase structure that includes a plurality of concentric areas (Fig. 6a) inducing a wavefront deviation in the first radiation beam that globally approximates a flat wavefront deviation (Col. 11, lines 63-66) and inducing a wavefront deviation in the central sub-beam that compensates the difference in spherical aberration due to the first and second transparent layer (Fig. 7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the phase structure of Yoo to include a plurality of concentric areas inducing a wavefront deviation in the first radiation beam that globally approximates a flat wavefront deviation as taught by Katayma, the motivation being for the flat wavefront deviation to be globally approximated so that the focal point of the first radiation beam is globally optimized.

In regard to claim 2, Yoo discloses that the photo-sensitive area has an edge arranged in the dark area of the intensity distribution (Fig. 11).

In regard to claim 3, Yoo discloses that the phase structure induces a wavefront deviation in the second radiation beam that globally approximates spherical aberration (Fig. 3A) and defocus, the defocus changing the axial distance between the focus of the central sub-beam (Fig. 2B, element A1 and A2) and the focus of the outer sub-beam (Fig. 2B, element A3).

In regard to claim 4, Yoo discloses that the phase structure introduces a defocus in the central sub-beam (Fig. 2B, elements A1 and A2 and Col. 6, lines 24-29).

In regard to claim 5, Yoo discloses the phase structure introduces a defocus in the outer sub-beam (Fig. 2B, element A3). The examiner notes that the focus of the light going through the A3 portion of the phase structure deviates from the accurate focal point and is therefor defocused by the phase structure.

In regard to claim 6, Yoo discloses the axial distance between the focus of the central sub-beam and the focus of the outer sub-beam is at least 12.5 um (Fig. 2B, element A3). The examiner notes that the axial difference between the focus of the central sub-beam (Fig. 2B, elements A1 and A2) and the focus of the outer sub-beam (Fig. 2B, element A3) appears to be on the magnitude of many times larger than 12.5 um.

In regard to claim 7, Yoo discloses a device for scanning two types of optical record carrier, the device including an optical head according to Claim 1 (Fig. 8A) that includes a four segment light detector (Fig. 11). Yoo does not disclose an information processing unit for error correction.

Katayama discloses an information processing unit for error correction that process data from a four segment light detector and generates a focus and tracking error signals (Col. 19, lines 12-22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the device of Yoo the information processing unit of Katayama, the motivation being to generate focus and tracking error signals to correct errors in focusing and tracking.

Citation of Relevant Prior Art

8. Braat (US 5,926,450) teaches that in an optical head for scanning record carriers of different thicknesses, the size of a light detector should be large enough to detect enough light

reflected from the thin record carrier, but small enough not to intercept marginal light reflected from the thick record carrier (Cols. 10 and 11). Lee et al (US 6,016,293) (Figs. 9 and 10) and Lee et al (US 5,903,536) (Figs. 24 and 27) disclose a light detector in an optical head for scanning record carriers of different thicknesses that only detects a central sub-beam reflected from the thick disc and none of the outer sub-beam. Yamazaki et al (US 6,370,103) discloses an optical head for scanning record carriers of different thicknesses with a second radiation beam that has a central and an outer sub-beam (Fig. 6). Oto et al (US 6,687,209) discloses an optical head for scanning record carriers of different thicknesses with a phase structure that globally approximates a flat wavefront deviation for a first radiation beam and compensates for spherical aberration due to different record carrier thicknesses in a second radiation beam (Figs. 7a and 7b).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V Battaglia whose telephone number is (703) 305-4534. The examiner can normally be reached on 5-4/9 Plan with 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Michael Battaglia

Michael Battaglia

W. R. YOUNG
PRIMARY EXAMINER